

**New Hampshire Department of Transportation
 Bureau of Materials & Research**

Qualified Products List – Qualification Criteria

Section 563 – Bridge Railing

A. ANCHOR BOLTS W/RESIN ADHESIVE

- Specification

The anchor system shall consist of a threaded ASTM A449 or ASTM A325 steel rod with a resin adhesive. The anchor system shall be capable of developing the full yield strength of the specified anchors in concrete with a compressive strength of 3,000 +/- 500 psi.

- Required Submissions

The manufacturer shall submit test results from an independent testing laboratory following International Code Council-Evaluation Service, Inc. (ICC-ES) AC58 guidelines; see Service Conditions in Table 3. ICC-ES was formerly known as the International Conference of Building Officials-Evaluation Service, Inc. (ICBO-ES).

The manufacturer shall demonstrate that the anchor system is capable of developing an ultimate tensile load equal to or greater than the full tensile yield strength of the specified bolts as listed in the following table.

| Threaded Rod Diameter (in.) | Force required to develop full yield strength of anchor (kips) |
|--------------------------------|---|
| 3/4 | 28.4 |
| 7/8 | 39.25 |
| 1 | 51.5 |

As required by AC58, the ultimate load of anchors shall be measured by the Static Tension Test, as described in ASTM E488 and modified here:

- Results shall be provided for all anchor sizes listed in the table above.
- The test member shall consist of a suitable sized concrete slab with a compressive strength 3,000 +/- 500 psi.
- The mode of failure (adhesive bond or concrete) shall be reported for each associated ultimate load.
- The hole shall be prepared per the manufacturer's recommendations described in normally provided product literature.
- The tested anchor embedment depth shall be the minimum specified by the manufacturer to achieve the required loading. Please note that excessive embedment depths may result in non-qualification or non-selection in the field.
- The anchoring system shall be installed and cured as described in the manufacturer's normally provided product literature.

The manufacturer shall submit test results from an independent laboratory, documenting the actual results of freeze/thaw testing described in AC58 and ASTM E1512.

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The qualifications of the independent lab shall be submitted for review. Alternatively, test results demonstrating the required properties, using the specified test method, from another State transportation agency may be accepted.

- Qualification Criteria

The Department will review submitted test results to assure conformance with the above-described specifications. The credentials of the testing laboratory will be reviewed to assure they are qualified to perform the required tests.

Approved by: *Alan D. Rawson*
Bureau Administrator

The Department continues to evaluate its qualification criteria as well as products that have been qualified against them, and reserves the right to revise the criteria and/or withdraw product qualification at any time for any reason without notice.